

ClaimsSub
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1. Use, as an additive for enhancing the arc-tracking and arc-erosion resistance properties:

- of a mixture A, B or C formed from:

5 1 in regard to mixture A, constituents A1 + A3 where constituent A1 is platinum in the form of a platinum complex or compound and constituent A3 consists of a combination of FeO and Fe₂O₃;

10 2 in regard to mixture B, constituents B1 + B2 where constituent B1 has the meaning of constituent A1 of 1 and constituent B2 consists of cerium(IV) oxide and/or hydroxide;

15 3 in regard to mixture B, constituents B1 + B3 where constituent B1 has the meaning of constituent A1 of 1 and constituent B3 consists of a combination of cerium(IV) oxide and/or hydroxide and titanium oxide TiO₂; or

20 4 in regard to mixture C, constituents C1 + C2 where constituent C1 has the meaning of constituent A1 of 1 and constituent C2 consists of a combination of constituent B3 mentioned in 3 and constituent A3 mentioned in 1;

25 the amounts of the various constituents A1, A3, B1, B2, B3, C1 and C2, and the ratios that may exist between the amounts of some of them in the case of combinations, lie within the ranges mentioned below;

- the amount of platinum, expressed in parts by

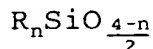
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- weight of elemental platinum, lies within the range going from 1 to 250 ppm with respect to the total weight of the polyorganosiloxane constituent(s) of the curable compositions D; and
- 5 • the amounts of constituents A3, B2, B3 and C2 of mixtures A, B and C, expressed in parts by weight of the constituent, lie within the range going from 0.5 to 30 parts by weight per 100 parts of the polyorganosiloxane constituent(s) of the
- 10 curable compositions D;
- in constituent A3 (a combination), the ratio of the amount by weight of FeO to that of Fe₂O₃ lies within the range going from 0.1:1 to 9:1;
- in constituent B3 (a combination), the ratio of
- 15 the amount by weight of cerium(IV) oxide and/or hydroxide to that of TiO₂ lies within the range going from 0.6:1 to 6:1;
- in constituent C2 (a combination), the ratio of the amount by weight of constituent A3 to that of
- 20 constituent B3 lies within the range going from 0.02:1 to 1:1;
- in a polyorganosiloxane composition D for obtaining a silicone elastomer, either
- 25 crosslinking at room temperature or with the heat from polyaddition reactions in the presence of a platinum catalyst, or crosslinking at high temperature by the action of an organic peroxide or peroxides;

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 • it being possible for constituent A1, B1 or C1 of the additive to be present in the form of the catalytic platinum which is contained in a polyorganosiloxane composition D crosslinking at room temperature or with the heat from polyaddition reactions.

2. ^{The method} ~~Use~~ according to claim 1, ^{11, wherein} ~~characterized~~ in that the curable polyorganosiloxane compositions D, presented as one or more (one-component or multicomponent) packages, contain a main constituent formed from one or more polyorganosiloxane constituents, a suitable catalyst and, optionally, one or more compounds selected from the group formed in particular by reinforcing or semi-reinforcing or bulking fillers or fillers serving to modify the rheology of the curable compositions, crosslinking agents, adhesion promoters, plasticizers, catalyst inhibitors and colorants.

3. ^{The method} ~~Use~~ according to claim 2, ^{wherein} ~~characterized~~ in that the polyorganosiloxanes are the main constituents of compositions D - consist of siloxyl units of general formula:



(I)

and/or siloxyl units of formula:



in which formulae the various symbols have the following meaning:

- the symbols R, which are identical or different,
5 each represent a non-hydrolysable hydrocarbon-type group, it being possible for this radical to be:
 - * alkyl and haloalkyl radicals having from 1 to 5 carbon atoms and containing from 1 to 6 chlorine and/or fluorine atoms;
 - 10 * cycloalkyl and halocycloalkyl radicals having from 3 to 8 carbon atoms and containing from 1 to 4 chlorine and/or fluorine atoms;
 - * aryl, alkylaryl and haloaryl radicals having from 6 to 8 carbon atoms and containing from 1 to
15 4 chlorine and/or fluorine atoms;
 - * cyanoalkyl radicals having from 3 to 4 carbon atoms;
- the symbols Z each represent a hydrogen atom or a C₂-C₆ alkenyl group;
- 20 - n = an integer equal to 0, 1, 2 or 3;
- x = an integer equal to 0, 1, 2 or 3;
- y = an integer equal to 0, 1 or 2;
- the sum x + y lies within the range going from 1 to

3.

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4. ~~Use according to claim 2 or 3,~~

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The method

11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

^{wherein}
~~characterized in that~~ the polyorganosiloxane

compositions D are those one-component or two-component compositions crosslinking at room temperature or with the heat from polyaddition reactions, called RTV

5 compositions, which comprise:

(a) 100 parts by weight of at least one polydiorganosiloxane chosen from linear homopolymers and copolymers having at least 2 vinyl groups per molecule, these vinyl groups being linked to different silicon atoms and located in the chain and/or at the chain ends, the other organic radicals of which, linked to the silicon atoms, are chosen from methyl, ethyl and phenyl radicals, at least 60 mol% of these other radicals being methyl radicals, and having a viscosity ranging from 400 to 100,000 mPa.s at 25°C;

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(b) at least one polyorganohydrosiloxane chosen from linear or cyclic homopolymers and copolymers having at least 2 hydrogen atoms per molecule, these hydrogen atoms being linked to different silicon atoms and the organic radicals of which, linked to the silicon atoms, are chosen from methyl, ethyl and phenyl radicals, at least 60 mol% of these radicals being methyl radicals, and having a viscosity ranging from 5 to 1000 mPa.s at 25°C, reactant (b) being used in an amount such that the molar ratio of the hydride

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functional groups of (b) to the vinyl groups of
(a) is between 1.1 and 4;

(c) a catalytically effective amount of a platinum catalyst;

5 (d) 0 to 120 part(s) by weight of siliceous filler(s) per 100 parts by weight of the combination of polyorganosiloxanes (a) + (b).

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5. ^{*The method*} ~~Use~~ according to claim 4, ^{*wherein*} ~~characterized~~
~~in that~~ up to 100% by weight of reactant (a) is
10 replaced with a polyorganosiloxane resin containing from 0.1 to 20% by weight of one or more vinyl groups in its structure, ~~the~~ said structure having at least two different units chosen from M (triorganosiloxy), D (diorganosiloxy), T (monoorganosiloxy) and Q ($\text{SiO}_{4/2}$)
15 units, at least one of these units being a T or Q unit, it being possible for the vinyl group(s) to be carried by the M, D and/or T units.

^{*The method*} 6. ^{*claim 2, wherein*} ~~Use~~ according to ~~claims 2 to 5,~~
~~characterized in that~~ the polyorganosiloxane
20 compositions D are those one-component or two-component compositions crosslinking with the heat from polyaddition reactions, called LSR compositions, these compositions satisfying the definitions ~~given above in~~
~~claim 4 or 5~~ with regard to so-called RTV compositions,
25 except with regard to the viscosity of the vinyl-containing polydiorganosiloxane reactant (a) which this time lies within the range going from a value greater than 100,000 mPa.s to 500,000 mPa.s.

The method
7. ~~Use~~ according to claim 2 ~~or 3~~, *wherein*

~~characterized in that~~ the polyorganosiloxane compositions D are those one-component or two-component compositions crosslinking with the heat from polyaddition reactions, called polyaddition EVC compositions, which comprise:

(a') 100 parts by weight of polydiorganosiloxane gum which is a linear homopolymer or copolymer having at least 2 vinyl groups per molecule, these vinyl groups being linked to different silicon atoms and located in the chain and/or at the chain ends, the other organic radicals of which, linked to the silicon atoms, are chosen from methyl, ethyl and phenyl radicals, at least 60 mol% of these other radicals being methyl radicals, and ~~the~~ said gum having a viscosity of greater than 500,000 mPa.s at 25°C;

(b') at least one polyorganohydrosiloxane chosen from linear, cyclic or network homopolymers and copolymers having at least 3 hydrogen atoms per molecule, these hydrogen atoms being linked to different silicon atoms, and the organic radicals of which, linked to the silicon atoms, are chosen from methyl, ethyl and phenyl radicals, at least 60 mol% of these radicals being methyl radicals, and having a viscosity ranging from 5 to 1000 mPa.s at 25°C, reactant (b') being used in an amount such that the molar ratio of the hydride

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functional groups of (b') to the vinyl groups of (a') is between 0.4 and 10;

(c') a catalytically effective amount of a platinum catalyst;

5 (d') 0.5 to 120 parts by weight of siliceous filler(s)

SUB per 100 parts by weight of the combination of
C7 polyorganosiloxanes (a') + (b').

The method
8. ¹ ~~Use~~ according to claim 2 ~~or 3~~,

wherein
¹ ~~characterized in that~~ the polyorganosiloxane

10 compositions D are those one-component compositions, called EVC compositions, comprising:

(a'') 100 parts by weight of a polydiorganosiloxane gum which is a linear homopolymer or copolymer having at least 2 vinyl groups per molecule, these vinyl groups being linked to different silicon atoms and located in the chain and/or at the chain ends, the other organic radicals of which, linked to the silicon atoms, are chosen from methyl, ethyl and phenyl radicals, at least 60 mol% of these other radicals being methyl radicals, and the said gum having a viscosity of at least 1,000,000 mPa.s at 25°C;

(b'') 0.1 to 7 parts by weight of an organic peroxide;

(c'') 0.5 to 120 parts by weight of siliceous filler(s) per 100 parts by weight of gum (a'').

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C2 9. ¹ Articles made of silicone elastomer having good arc-tracking and arc-erosion resistance properties, *and* ~~as well as~~ good flame-resistance properties

and good mechanical properties, ^{which} ~~characterized in that~~
~~they~~ are obtained by crosslinking:

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5 • polyorganosiloxane compositions D as defined in
~~any one of claims 2 to 8,~~
• ~~containing the property-enhancing additive as~~
~~defined, in terms of its nature and its proportions in~~
~~use, in claim 1.~~

10. ^{which comprise} Articles according to claim 9,
~~characterized in that they consist of electrical~~
10 insulation materials, medium-voltage and high-voltage
insulators, cable termination accessories, cable
joints, anode caps for television tubes and moulded
objects or extruded articles for the aeronautics
industry.

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